

Amendments to the Claims

Claims 1, 3 – 6, 9, 11, 13, 15 – 16, 18, 21, 26, 28, 30, and 33 are currently amended. Claims 20, 22 – 23, and 32 are previously presented. Claims 12, 17, 19, 29, 31, and 34 are original. Claims 7 – 8, 10, 24 – 25, and 27 are withdrawn. Claims 2 and 14 are cancelled. No new matter is added by these amendments. Consideration of all claims is respectfully requested.

Listing of Claims

Claim 1 (currently amended): A method of timing utilizing an imprecise timer, the timer repeatedly triggering a reference event according to a predetermined time interval, the method comprising the steps of:

10 storing a threshold value;

storing a count value corresponding to a plurality of reference events generated from the timer;

15 tracking ~~[[an]]~~ a first actual time interval between ~~each of the~~ reference events, ~~each actual time interval corresponding to an actual time between~~ a first reference event and a second reference event occurring after the first reference event;

calculating a ~~plurality of first~~ compensation value ~~values, each compensation~~ value corresponding to the predetermined time interval and the first one ~~of the~~ actual time interval ~~intervals~~;

20 ~~utilizing each~~ applying the first compensation value to the count value for reducing a difference between the count value and the threshold value; and

25 after applying the first compensation value to the count value for reducing a difference between the count value and the threshold value, determining if the count value reaches the threshold value;

if the count value does not reach the threshold value, tracking at least a second actual time interval to calculate a second compensation value and

applying the second compensation value to the count value to further
reduce the difference between the count value and the threshold value;
and

5 generating an acknowledgement event when the count value reaches the
threshold value.

Claim 2(cancelled).

10 Claim 3 (currently amended). The method of claim 1 wherein the step of if the count
value does not reach the threshold value, tracking at least a second actual
time interval ~~tracking the actual time interval between each of the reference~~
events further comprises tracking the actual time intervals between every
two adjacent reference events.

15 Claim 4 (currently amended). The method of claim 3 wherein the step of tracking the
actual time intervals ~~between each of the~~ every two adjacent reference events
further comprises utilizing a reference clock for computing a time value
corresponding to the actual time interval between every two adjacent
20 reference events, and resetting the time value before the reference clock
starts tracking the first actual time interval between the first reference event
and the second reference event.

25 Claim 5 (currently amended). The method of claim 1 wherein the step of calculating
~~the plurality of a first~~ compensation value ~~values~~ further comprises
determining ~~each~~ the first compensation value by calculating a ratio of ~~one~~
~~of the first~~ actual time interval[[s]] to the predetermined time interval.

30 Claim 6 (currently amended). The method of claim 5 wherein the step of calculating
~~the plurality of a first~~ compensation value ~~values~~ further comprises utilizing
an integer closest to the ratio to be the compensation value for ~~each of the~~
first compensation value ~~values~~.

Claim 7 (withdrawn). The method of claim 5 wherein the compensation value is a floating point value, and records the ratio of the actual time interval to the predetermined time interval.

5 Claim 8 (withdrawn). The method of claim 1 wherein an initial value of the threshold value is greater than an initial value of the count value, and the step of utilizing the compensation value for reducing the difference further comprises increasing the count value and reducing the threshold value for reducing the difference by the compensation value.

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Claim 9 (currently amended). The method of claim 1 wherein an initial value of the threshold value is greater than an initial value of the count value, and the step of utilizing ~~each~~ the first compensation value for reducing the difference further comprises adding ~~each~~ the first compensation value to the count value without adjusting the threshold value for reducing the difference by ~~each~~ the first compensation value.

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Claim 10 (withdrawn). The method of claim 1 wherein an initial value of the threshold value is less than an initial value of the count value, and the step of utilizing the compensation value for reducing the difference further comprises decreasing the count value and increasing the threshold value for reducing the difference by the compensation value.

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Claim 11 (currently amended). The method of claim 1 wherein an initial value of the threshold value is less than an initial value of the count value, and the step of utilizing ~~each~~ the first compensation value for reducing the difference further comprises subtracting ~~each~~ the first compensation value from the count value without adjusting the threshold value for reducing the difference by ~~each~~ the first compensation value.

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Claim 12 (original). The method of claim 1 wherein the reference events are system interrupts.

Claim 13 (currently amended). A method of timing utilizing an imprecise timer, the timer repeatedly triggering a reference event, the method comprising the steps of:

- 5 storing a threshold value and a count value;
tracking ~~[[an]]~~ at least a first actual time interval between every two
~~reference events, each actual time interval corresponding to an actual~~
~~time between a first reference event and a second reference event~~
~~occurring after the first reference event, and selectively tracking a~~
10 plurality of actual time intervals according to the count value;
dynamically updating the count value according to a first value being
~~dynamically calculated by accumulating a plurality of actual time~~
~~intervals corresponding to the first actual time interval a plurality of~~
~~reference events; and~~
15 after dynamically updating the count value according to the first value,
determining if the count value reaches the threshold value;
if the count value does not reach the threshold value, tracking at least a
second actual time interval to calculate a second value corresponding to
the second actual time interval and dynamically updating the count value
20 according to the second value; and
generating an acknowledgement event when the count value reaches the
threshold value.

Claim 14 (cancelled).

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Claim 15 (currently amended). The method of claim 13 wherein the step of if the
count value does not reach the threshold value, tracking the at least a second
~~actual time interval between every two reference events~~ further comprises
tracking the actual time intervals between every two adjacent reference
30 events.

Claim 16 (currently amended). The method of claim 15 wherein the step of tracking

the actual time intervals between every two reference events further comprises utilizing a reference clock for computing a time value corresponding to the actual time interval between every two adjacent reference events, and resetting the time value before the reference clock starts tracking the first actual time interval between a first reference event and a second reference event.

Claim 17 (original). The method of claim 13 wherein the reference events are system interrupts.

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Claim 18 (currently amended). A timer system comprising:

[[a]] an imprecise timer for repeatedly triggering a reference event according to a predetermined time interval;

a first storage unit for storing a threshold value;

15 a second storage unit for storing a count value corresponding to a plurality of reference events generated from the timer;

a tracking module electrically connected to the timer for tracking [[an]] at least a first actual time interval between ~~each of the reference events;~~ ~~each actual time interval corresponding to an actual time between a first~~ reference event and a second reference event occurring after the first reference event, and selectively tracking a plurality of actual time intervals according to the count value;

20 a calculating module electrically connected to the tracking module for calculating a plurality of compensation values, each compensation value corresponding to the predetermined time interval and one of the actual time intervals; and

25 a compensating module electrically connected to the calculating module and at least one of the first and second storage units for reducing a difference between the count value and the threshold value utilizing each compensation value;

30 wherein if the count value reaches the threshold value, the tracking module stops tracking.

Claim 19 (original). The timer system of claim 18 further comprising a decision logic electrically connected to the first and second storage units for generating an acknowledgement event if the count value reaches the threshold value.

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Claim 20 (previously presented). The timer system of claim 19 wherein the first and second storage units, the calculating module, compensating module, and the decision logic are positioned within a microprocessor, and the timer is driven by the microprocessor.

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Claim 21 (currently amended). The timer system of claim 18 wherein the tracking module comprises a clock generator for serving as a reference clock, and the tracking module utilizes the reference clock for computing a time value corresponding to the actual time interval between every two adjacent reference events, and resets the time value before the reference clock starts tracking the first actual time interval between the first reference event and the second reference event.

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Claim 22 (previously presented). The timer system of claim 18 wherein the compensating module determines each compensation value by calculating a ratio of one of the actual time intervals to the predetermined time interval.

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Claim 23 (previously presented). The timer system of claim 22 wherein the compensating module utilizes an integer closest to the ratio to be each compensation value.

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Claim 24 (withdrawn). The timer system of claim 22 wherein the compensating module utilizes a floating point value to be the compensation value for recording the ratio of the actual time interval to the predetermined time interval.

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Claim 25 (withdrawn). The timer system of claim 18 wherein an initial value of the

threshold value is greater than an initial value of the count value, and the compensating module increases the count value and reduces the threshold value for reducing the difference by the compensation value.

- 5 Claim 26 (currently amended). The timer system of claim 18 wherein an initial value of the threshold value is greater than an initial value of the count value, and the compensating module adds each compensation value individually to the count value without adjusting the threshold value for reducing the difference by each compensation value.

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- Claim 27 (withdrawn). The timer system of claim 18 wherein an initial value of the threshold value is less than an initial value of the count value, and the compensating module decreases the count value and increases the threshold value for reducing the difference by the compensation value.

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- Claim 28 (currently amended). The timer system of claim 18 wherein an initial value of the threshold value is less than an initial value of the count value, and the compensating module subtracts each compensation value individually from the count value without adjusting the threshold value for reducing the difference by each compensation value.

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- Claim 29 (original). The timer system of claim 18 wherein the reference events are system interrupts of the timer system.

- 25 Claim 30 (currently amended). A timer system comprising:
[[a]] an imprecise timer for repeatedly triggering a reference event;
a first storage unit for storing a threshold value;
a second storage unit for storing a count value;
a tracking module electrically connected to the timer for tracking [[an]] at
30 least a first actual time interval between ~~every two reference events, each~~
~~actual time interval corresponding to an actual time between a~~ first
reference event and a second reference event occurring after the first

reference event, and selectively tracking a plurality of actual time intervals according to the count value; and

a calculating module electrically connected to the tracking module for dynamically updating the count value according to at least a first value ~~being dynamically calculated by accumulating a plurality of actual time intervals corresponding to the first actual time interval a plurality of reference events;~~

wherein if the count value reaches the threshold value, the tracking module stops tracking.

Claim 31 (original). The timer system of claim 30 further comprising: a decision logic electrically connected to the first and second storage units for generating an acknowledgement event if the count value reaches the threshold value.

Claim 32 (previously presented). The timer system of claim 31 wherein the first storage unit, the second storage unit, the calculating module, and the decision logic are positioned within a microprocessor, and the timer is driven by the microprocessor.

Claim 33 (currently amended). The timer system of claim 30 wherein the tracking module comprises a clock generator for generating a reference clock, and the tracking module utilizes the reference clock for computing a time value corresponding to the actual time interval between every two adjacent reference events, and resets the time value before the reference clock starts tracking the first actual time interval between a first reference event and a second reference event.

Claim 34 (original). The timer system of claim 30 wherein the reference events are system interrupts of the timer system.

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